THE REVIEW

DEVOTED TO THE INTERESTS OF THE AMERICAN SOCIETY FOR STEEL TREATING

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E. C. BAIN TALKS AT CHICAGO'S MEETING

Gives Essence of his Recent Campbell Memorial Lecture

By A. W. Sikes

The October dinner meeting of the Chicago chapter was one of the largest meetings ever held. About 150 members and friends were present for dinner with an equal number coming in later for the technical meeting which taxed the capacity of our regular meeting quarters in the City Club.

Chairman Walther Mathesius opened the meeting immediately after dinner with the usual raffle to see which one of those making dinner reservations had drawn the winning number, with the opportunity of having his dollar refunded. Louis Z. Smitz was the fortunate man this time.

Our efficient secretary, Jack Comstock, then gave a concise report of his trip to the Convention and the results of the election of the National Officers. The meeting was then turned over to Past National President Bob Guthrie who acted as technical chairman during the balance of the evening. Edgar C. Bain, research laboratory, U. S. Steel Corp., Kearny, N. J., discussed the hardenability of steel, giving us, in essence, his Campbell Memorial Lecture just given before the National Metal Congress at Buffalo.

[Mr. Bain's Campbell lecture is abstracted at length in the November *Metal Progress* and will soon be printed in full in *Transactions*. Hence it will not be abstracted again here—Ed.]

Technical Chairman Guthrie then called on Messrs. Grossmann, Knowlton, Clarage, Sikes, and others for questions for Mr. Bain. Dr. Grossmann very cleverly referred to the speaker as the "Bobby Jones of Metallurgy" having won four major kudos in this field, as Hunt medalist, Howe medalist, Howe lecturer and Campbell lecturer. Mr. Guthrie told the speaker that his talk was one of the clearest and packed the most information in a comparatively short space of time that the members of the Chicago chapter have been fortunate enough to hear.

In closing this report, it would be improper not to mention the scientific film, "Bring 'Em Back Alive," showing the Chicago Steel Treater at play, photographed by Art Clarage and Adam Steever, titles and continuity by Jack Comstock, leading men—members and friends of the Chicago chapter, A. S. S. T. The chapter thoroughly enjoyed the Comstock Tour through the jungles of Wheeling and Cherry Hill and more firmly fixed the tradition of taking pictures of the annual outing and golf picnic for subsequent showing at an early fall meeting.

WASHINGTON HEARS FACTS OF ECLIPSE AT SMOKER MEETING

Large Crowd Has a Good Time

The Washington chapter got under way for the season 1932-1933 with a bang. A lively smoker, held Oct. 10, was attended by a large crowd. A feature was the rare treat of having Dr. Paul R. Heyl, a scientist of the Bureau of Standards, who gave an extremely interesting talk on the eclipse of this past summer. Dr. Heyl explained the reasons for the great interest scientists, other than astronomers, had in the eclipse. Everyone was interested, Dr. Heyl claimed, but the radio engineer and the physicist had a number of interesting theories to prove. These theories he elaborated.

Mr. Herschman, chairman of the evening, called on Mr. Yetter, Mr. Quick, and Vice-chairman Jordan, to speak on the activities of the society and to explain to our guests the benefits of membership.

The remainder of the evening was spent in eating hot dogs and drinking coffee, and having various sessions among clouds of cigar smoke.

BOSTON LOSES 2 BY DEATH

Two valued members were lost through death to the Boston chapter during the month of October. J. A. Ricard, representative of the Crucible Steel Co., died at the age of 71 on Oct. 8. Professor H. W. Hayward of Massachusetts Institute of Technology died suddenly on Oct. 18. The chapter mourns the loss of these fine men.

AIR TERMINAL AND SHOPS ARE VISITED BY LOS ANGELES MEN

Study Materials In Airplanes

By Richard S. Smith

Over 100 members gathered at the Grand Central Air Terminal, at Glendale, Oct. 13, to attend the second annual Aircraft Meeting of the Los Angeles chapter. The members were served a turkey dinner deluxe and then, through the courtesy of Curtis-Wright Co., the chapter visited the Curtis-Wright schools and shops where the men saw every phase of aircraft construction in progress. The trip through the shops was very interesting and the guides were kept busy answering questions from the members.

After the visitation the members returned to the dining room and heard a talk by Gerard F. Vultee, chief engineer of the Aircraft Development Corp., the title of which was "A Designer's View Point on Airplane Materials."

Mr. Vultee started his talk with several blackboard sketches showing the advantages of monocoque construction of aircraft fuselage over the conventional rectangular type. The speaker also illustrated his talk by passing around about 25 samples of wing and fuselage construction explaining at all times just what materials were used in each part and why this material was used.

He said further that the airplane industry had not as yet reached the production stage and told of the immense amount of work necessary to make by hand and weld the small fittings used, due to the fact that production was not large enough to warrant the cost of patterns and forging dies. One of the most interesting points brought out by the speaker was the tremendous safety factor necessary in aircraft construction.

A novel entertainment of the evening, of which many of the members took advantage, was a night airplane ride in the beautiful Southern California moonlight (and fog).

YORK MEN MEET IN WAYNESBORO OCT. 5

Technical Talk on High Speed Presented by Kingsbury

By G. J. O'Neill and F. J. Allen

The October meeting of the York chapter was held in Waynesboro, Pa., on Oct. 5. The afternoon was given over to a social time, including the playing of golf and cards, but weather conditions prohibited the assembly of very many. However, the dinner attracted 63 members and guests. Eighty-five attended the meeting.

A coffee talk was given at the dinner by T. B. Wood, president of the T. B. Wood Manufacturing Co., Chambersburg, president of the Manufacturers' Association of Waynesboro and a member of the York chapter, who discussed briefly the work of the Association. Incidentally, the Waynesboro meetings have owed a great deal of their success to the splendid co-operation that has been given by the Manufacturers' Association. Its secretary, Mr. Knupp, has always expended much effort in helping to guarantee the success of our Waynesboro meetings.

James Morrison of the program committee introduced the speaker of the evening, A. H. Kingsbury, metallurgist, Crucible Steel Co. of America. Mr. Kingsbury's talk was on "The Analysis, Structure and Heat-Treatment of High Speed Steels."

Mr. Kingsbury started his talk with a resume of the analyses of various popular types of high speed steels now available and then went into detail as to the effects of proper annealing and proper hardening of the regular type of high speed steels, exclusive of cemented carbides. Of particular interest were Mr. Kingsbury's remarks on the relationship of temperature to quenching, including the speed of quenching and the point at which tools should be removed from quenching baths in order to insure proper hardening taking place.

Naturally, such a talk as Mr. Kingsbury gave engendered a great deal of floor discussion following his talk. This discussion was entered into quite freely by many present.

The usual basket of Cumberland Valley apples was ready at the conclusion of the meeting for those present.

HARTFORD MEN LIKE MACHINING MEETING

Keshian and Holland Speak at Metal Cutting Symposium

By John P. Howley

About 150 members and guests attended the October meeting of the Hartford chapter. The meeting was preceded by an informal dinner held at the City Club.

The speakers, H. G. Keshian, metallurgist of Chase Companies, and I. F. Holland, superintendent, small tools division, Pratt & Whitney Co., were introduced by A. H. d'Arcambal, president of the National Society and consulting metallurgist of the Pratt & Whitney Co.

Mr. Keshian in his talk on the "Principles Underlying the Selection of Tool Steels" clearly brought out the problem confronting the engineer or designer in attempting to select the correct tool steel for the particular job in hand. The vast amount of data available to the designers and builders of machines, automotive and structural parts makes the selection of the correct steel for these applications a comparatively simple matter. In the selection of tool steels, however, the data are only vague and meager. The accurate determination and publication of the properties of tool steels, such as resistance to wear, impact and fatigue, etc., would be of great value to the consumer, Mr. Keshian said.

In speaking of "Machining Difficulties of Alloy Steels," Mr. Holland first touched briefly on cutting solutions, citing a number of instances where difficult machining problems had been overcome by changing the cutting solution. He then pointed out that there are a number of factors to be taken into consideration when machining difficulties are encountered. These are:

Type of operation; finish desired; feeds and speeds; design and hardness of cutting tool; chemical analysis and hardness of steel being machined; structure and surface condition of steel.

Mr. Holland spoke at some length on the effect produced by a variation in the grain size of steel upon its machining properties. This part of the talk was illustrated with some excellent slides.

F. R. PALMER FIRST NEW HAVEN SPEAKER

Reveals Quenching Mysteries At Oct. 20 Meeting

By P. L. Clark

The first meeting on the 1932-1933 program for the New Haven chapter, held on Oct. 20, was very encouraging both to the officers and members.

About 30 attended dinner served in the Gold Room of the Y. W. C. A. in New Haven.

S. C. Spalding, chairman of the chapter, presided. Our vice-chairman, M. W. Brewster, outlined the program for the year, and R. T. Porter, secretary and treasurer, read a report concerning the business standing of our chapter. Our convention delegate, F. J. Dawless, gave an interesting report of the recent National Convention at Buffalo. We were favored by having National President A. H. d'Arcambal with us and he gave an interesting report on the affairs of the Society.

The guest speaker of the evening was Frank R. Palmer, assistant to the president of Carpenter Steel Co., who spoke on "The Myteries of Quenching."

By lantern slides and models he demonstrated the elasticity of steel and its bearing on practical uses. He introduced the modern quenching bath as a piece of scientific equipment far removed from the simple bosh and showed how by scientific quenching the forces of tension and compression set up in hardening can add strength and help avoid breakage in steel dies, tools, etc.

To accomplish these results the quenching must be affected by fixtures and controlled spouting accurately timed so as to build up the stresses in the required direction and order. He prophesied that tool demands in the future would be met by refinements of quenching rather than development of super steels.

AGING, EMBRITTLEMENT ARE STUDIED BY PITTSBURGH MEN

Samuel Epstein Interests 200

By Geo. P. Halliwell

The Pittsburgh chapter held its second monthly meeting at the Keystone Athletic Club. Sixty members sat down to dinner and over 200 members and guests attended the main meeting. After dinner the Heppenstall Co. showed a commercial moving picture of the manufacture of Hardtem razor blades.

This was followed by a most interesting talk on "The Embrittlement and Aging of Structural Steels" by Samuel Epstein of the Battelle Memorial Institute. The data presented was collected over a period of two years.

The work was started following the breaking of structural steel angles while being unloaded from freight cars. In every case the failure was through the punched holes and showed a brittle fracture with no reduction in area. Mr. Epstein showed conclusively that, following any cold working operation, bessemer steel was in every case the most brittle while open hearth, duplex, electric and Izett steels were superior in the order named.

Such brittleness was absent in steels with drilled holes or in steels with punched holes which were subsequently reamed. The amount of brittleness increased with the size of the hole punched. Galvanizing accentuates this brittleness in all steels. The possibility of hydrogen embrittlement directly resulting from the pickling operation was eliminated. All the experimental evidence pointed to a strain age-hardening which is accentuated by galvanizing temperatures.

A lively discussion followed led by H. W. Graham.

CAST IRON TALK IS HEARD BY NEW YORK

F. B. Coyle Emphasizes Heat Treating Fundamentals

By F. H. Clark

The first fall meeting of the New York chapter was held Oct. 10 with dinner served at Loft's restaurant and the meeting held subsequently in the Woolworth Building. F. B. Coyle, research metallurgist for the International Nickel Co., gave the evening's discussion on the "Heat Treatment Fundamentals of Plain and Alloy Cast Iron."

Mr. Coyle said that there is a definite relation between the annealing temperature and the amount of combined carbon present in a cast iron. Annealing at 800°F. causes a decrease in the combined carbon. Annealing at 1200°F. tends to break up all the carbides present. This can be prevented by the addition of some element such as chromium.

These alloy cast irons respond very well to heat treatment. Artificial aging may be used to relieve the stress. The ideal way is to anneal below the critical range but as high as possible. Care must be taken however to prevent an increase in the volume due to aging. The most usual practice is to age at 900-1000°F. as stresses may then be relieved and growth prevented. Annealing at 1450°F. will give maximum machinability with a Brinell of 120. A heat treatment of quenching in water, oil or air with a drawing back is also admirably suited to alloy cast irons.

There are many important applications for the foregoing alloys. The nickel-chromium cast irons are used for dies in the automotive industry and for general sheet metal applications.

NEW BOOKLET ON STAINLESS

Write to Society Headquarters for Your Copy of this Useful Booklet

An attractive and exceptionally useful booklet on stainless steel sheets and light plates manufactured by American Sheet and Tin Plate Co., subsidiary of United States Steel Corp., has been offered to members of the Society. Contents include recommendations for annealing, forming, spinning, pickling, brazing, welding and soldering and a description of finishes and analyses available. Write to Society headquarters, 7016 Euclid Ave., Cleveland, to get your copy.

A. S. S. T. TO ISSUE 1933 EDITION OF METALS HANDBOOK

Expect New Edition Will be Ready before July 1, 1933

Metals Handbook is an important publication of the Society and has met with unusual reception from the members as well as non-members of the A. S. S. T. It was, therefore, an important announcement made in the last issue of the Review that the Directors had decided to publish during the first half of 1933 a new edition of *Metals Handbook*. As this new edition will be completely revised and much enlarged, members will find it even more useful than the 1930 edition.

The 1930 edition of *Metals Handbook* was distributed to the members in June, 1930. It will therefore be approximately three years old by the time it is replaced with the next edition. As technical data and information are replaced rapidly it is a wise decision that the new *Handbook* will soon be published in revised form so that it will reflect present-day practices, methods, and information.

Approximately 500 committee members, authors, and reviewers participated in the preparation of the 1930 edition. Each one is being advised of the plans for the new *Handbook* and is being requested to again participate in either reviewing or revising his particular article so that it will be accurate for the new *Handbook*. All of these men are responding splendidly and in every case have indicated their deep interest in again cooperating in making the next issue of *Metals Handbook* even better than the 1930 edition.

The 836 pages of texts will have careful attention so that all the data will be completely revised and thereby as accurate as possible for the coming issue. To these 836 pages there will be added approximately 200 pages of new material on 28 subjects. This new material is about equally divided on ferrous and nonferrous subjects.

The preparation of over 1000 pages of *Handbook* material requires considerable time and attention, but an endeavor will be made to have the book completed so that it can be distributed to the members of the Society by at least early summer and every effort will be made to have it in the hands of the members even before that time.

The system of distributing the *Handbooks* will be essentially the same as was followed in 1930.

The success of *Metals Handbook* is due entirely to the splendid interest and cooperation that all members have exhibited in its preparation over the last ten years. *Metals Handbook* is a valuable piece of work and we are sure that this splendid cooperation will continue.

ST. LOUIS GOES A-GUNNING

Chapter Visits Big Gun and Ammunition Plant for Interesting Meeting

By F. D. Burnett

The October meeting of the St. Louis chapter was held at the Western Cartridge Co., East Alton, Ill., who very kindly had arranged an inspection of the plant. After the inspection trip, the chapter viewed an exhibit of guns, ammunition, and brass specialties which the plant manufactures.

After a dinner served in the cafeteria, Mr. Storm, plant superintendent, spoke briefly on the development of the Western Cartridge Co. The main speaker of the evening was Col. Roy Riggs, who stressed accuracy as being the most vital point in the manufacture of guns and ammunition. He cited many incidents in big game hunting in which time, money, and energy spent were dependent upon one shot, accurately fired.

TINIUS OLSEN DIED OCT. 20

Tinius Olsen, a pioneer in the development of testing machinery in the United States, died at his home in Philadelphia on Oct. 20. He was founder and until December, 1929, president of Tinius Olsen Testing Machine Co. He was a native of Kongsberg, Norway, and came to this country 65 years ago. A son, Thorsten Y. Olsen, a member of the Society, is now president of the company.

THE REVIEW

Devoted to the interests of the American Society for Steel Treating

A Review of the Activities of the Chapters and National Organization of the A. S. S. T.

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A. H. D'ARCAMBAL, *President*
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WORCESTER MEETING HEADLINES SPRINGS

R. C. Jordan Tells of Design and Heat Treatment

By R. R. Tatnall

The October meeting of the Worcester chapter was a dinner meeting held at the Aurora Hotel, Oct. 19. Thirty-two members and guests enjoyed the dinner, and 54 gathered to hear the speaker of the evening.

"The Design and Heat Treatment of Springs" was the title of a paper presented by R. C. Jordan of the Wickwire Spencer Steel Co. Mr. Jordan described the various kinds of spring wires, giving a brief summary of the analysis and properties of each. The two principal classes of spring wire are the oil tempered and the hard drawn. The elastic limit of oil tempered wire is high, running 75-80% of the ultimate strength. The tensile strength obtained by the hardening treatment is high also.

By cold working, that is, wire drawing, the tensile strength may be increased so that the finished wire of the hard drawn variety equals the tempered wire in strength. The elastic limit of the hard drawn wire, however, is not so high. Mr. Jordan showed how the tensile strength of these wires varied with the size of the material. Bearing in mind that all wires have similar properties with regard to toughness, wire which is ½ inch in diameter will have a strength of 180,000 lbs. sq. in., and wire which is 1-16 inch will have a strength of 250,000 lbs. sq. in.

Concerning the heat treatment of springs, there are two main divisions. The first of these is the treatment to bring out the maximum physicial properties. This is nothing but the hardening and drawing treatment. The second treatment is the low temperature anneal which is given to springs coiled from pre-tempered wire or from hard drawn wire. This treatment, which is carried out at temperatures ranging from 400 to 650, relieves the strains in the material due to cold work.

An interesting curve was presented showing that, when a spring is compressed and then subjected to heat, a certain precentage of the strength is lost. In this connection, also, it is impossible to say how much strength will be lost.

Mr. Jordan's talk was well illustrated with slides showing the physical properties of spring wires, the structures obtained in the various heat treatments through which the wire must go in manufacture, and also a number of slides showing various types of springs, and illustrating the points to be covered in making specifications for springs.

INDIANAPOLIS HEARS ABOUT WELDING AND CUTTING TOOLS

Siegar Addresses Oct. Meeting

By R. L. Fitzsimmons

On Oct. 10, about 50 members and guests attended the second monthly dinner meeting of the Indianapolis chapter, held at the Athenaeum.

The speaker of the evening was G. N. Siegar, director of metallurgical division, P. R. Mallory & Co., Inc. His subject was "Welding and Cutting". Mr. Siegar gave a very interesting talk on the use of elkonite in spot welding and other resistance weldings. He explained why elkonite contact points in resistance welders outlast ordinary copper contacts.

The speaker cited several instances where elkonite is used to advantage to speed up production and, also, improve the welds. The speaker then discussed carboloy and its various uses. Mr. Siegar compared the use of tungsten carbide to the use of the diamond for the same operation. A very interesting discussion followed the speaker's address.

PHILADELPHIA MEN STUDY HIGH SPEED

Kingsbury Tells Metallurgy of this Type of Steel

By Adolph O. Schaefer

Philadelphia's largest meeting of the infant season gathered on the evening of Oct. 28 to take part in a long and varied program.

The principal speaker of the occasion was A. H. Kingsbury, metallurgist of the Halcomb Steel Co. The subject was "High Speed Steels."

To all and sundry, the Philadelphia chapter can recommend the speaker and his subject. It begins at the beginning with the fundamental principles of tool steels. It proceeds through the metallurgy and metallography of high speed steels, with an excellent set of photomicrographs to illustrate the story.

A study of critical temperature curves of high speed steels forms the basis of a discussion on hardening. Mr. Kingsbury is so well acquainted with his subject, that the interest of the group never lags, and the discussion that follows is a good one.

An added feature of the program was the showing of the film on the "Manufacture of Razor Blades" prepared by the Heppenstall Co. A. L. Wurster gave a short talk in explanation of the film. The process of manufacturing these little specimens of metallurgical ingenuity is a most interesting study.

The members gathered for dinner as usual preceding the meeting. The guest speaker on this occasion was Harry T. Jordan, for years manager of Keith's Theater in Philadelphia. Mr. Jordan's reminiscences of the rise and fall of vaudeville formed an interesting subject, and entertained the large gathering.

The Philadelphia chapter announced at this meeting its participation in a drive being made by the combined technical societies of Philadelphia to raise sufficient funds to take care of those of their members in destitute circumstances.

ROCHESTER WATCHES CRYSTALS FORM IN METALS AND ALLOYS

Actual Demonstration Interests

By Joseph M. Keating

The Rochester chapter held their first regular monthly meeting of the season at the Powers Hotel. The meeting was preceded by a dinner in honor of the guest speaker, Dr. C. W. Mason, assistant professor of chemical microscopy at Cornell University.

The speaker during his talk featured a novel illustration of the formation of crystal growth of metals while cooling from the liquid to the solid state. This was done by melting the metals on a glass slide under a microscope and projecting the result on a screen through a mirror arrangement.

This talk gave us a first hand picture of the occurrence of crystal formation of metals and alloys and the segregation of impurities at the crystal grain boundaries.

REVISE CHEMICAL HANDBOOK

New Edition of Handbook of Chemistry May be Ordered Through A. S. S. T.

The new 17th edition of the Handbook of Chemistry and Physics has just been published by the Chemical Rubber Co., Cleveland.

About 1750 pages, 500 of them new or revised, comprise this very complete reference work. A new table of organic compounds, covering 220 pages, compiled with the assistance of 125 professors of organic chemistry, is a feature.

Copies can be obtained through the National Offices of the Society by enclosing check or money order for $6.00.

Programs of the Chapters

Addresses of Secretaries

BOSTON—H. E. Handy, Saco-Lowell Shops, Biddeford, Me.
Dec. 2—Welding ..... J. C. Hodge
Jan. 6—Tool Steel ..... G. V. Luerssen
Feb. 3—Gas in Heat Treating ... R. J. Cowan

BUFFALO—T. H. Burke, Otis Elevator Co.
Dec. 8—Alloy Steels ..... E. C. Smith
Jan. 12—Steel Castings ..... Tentative
Feb. 9—Local Talent Night ..... Tentative
Mar. 9—Welding ..... Norman Wilson
Apr. 13—Machinability ..... J. V. Emmons
May 10—Annual Meeting .....

CHICAGO—John Comstock, Room 1724, 122 So. Michigan Ave.
Dec. 8—Special Steels ..... E. C. Smith
Jan. 12—President's Night ..... W. B. Coleman
Feb. 9—Practical Metallurgy .. H. B. Knowlton
Mar. 9—Die Castings ..... D. L. Colwell
Apr. 13— ..... Zay Jeffries
May 11—Stainless Steels ..... T. H. Nelson

CINCINNATI—N. C. Strohmenger, Tool Steel Gear & Pinion Co.
Dec. 8—Gas Carburizing ..... R. J. Cowan
Jan. 12—Cast Iron ..... J. W. Bolton
Feb. 9—Salt Baths ..... H. W. Gager
Mar. 9—Steel Personality ... B. F. Shepherd
May 11—Airplanes .....

CLEVELAND—H. B. Pulsifer, Perry Cap & Set Screw Co.
Dec. 5—Cutting Materials .....
Zay Jeffries and W. P. Sikes
Jan. 9—Heat Resisting Steels .. T. H. Nelson
Feb. 6—Bridge Wire ..... H. C. Boynton
Mar. 6—Grain Size ..... M. A. Grossmann
Apr. 10—Aluminum .....
F. C. Frary and G. D. Welty

COLUMBUS—L. H. Marshall, 271 Winthrop Rd.
Dec. 13—Furnace Atmospheres .. R. J. Cowan
Jan. 10—Cast Iron ..... J. W. Bolton
Feb. 7—Salt Baths ..... H. W. Gager
Mar. 7—Machinability ..... B. F. Shepherd

DAYTON—F. M. Reiter, Dayton Power & Light Co.
Dec. 12—Furnace Atmospheres .... R. J. Cowan
Jan. 9—Cast Iron ..... J. W. Bolton
Feb. 13—Salt Baths ..... H. W. Gager
Mar. 13—Machinability ..... B. F. Shepherd
F. C. Frary and G. D. Welty
Nov. 17—Molybdenum ..... W. H. Phillips
Nov. 17—Machining ..... I. F. Holland
G. W. Colton and Arthur Phillips
Dec. 2—Non-ferrous Metal Mold Castings
F. R. Francis

DETROIT—Gordon Webb—Room 410, Donovan Bldg.
Nov. 14—Gas Carburizing .... E. A. Thomas
Dec. 12—Christmas Party .....
Jan. 9—Cast Iron ..... Hyman Bornstein
Feb. 13— ..... H. J. French
Mar. 13—Gears ..... E. F. Davis
Apr. 10—Steel ..... C. H. Herty, Jr.
May 8—Plating ..... G. B. Hogaboom

HARTFORD—James Allison, Union Drawn Steel Co.
Dec. 13—Aircraft Metallurgy . H. J. Fischbeck
Jan. 10—Cast Iron ..... A. W. Morris
Feb. 14—Atmosphere Control ..... A. N. Otis
Mar. 14—George Washington Bridge ....
C. M. Jones
Apr. 11—Steel Castings ..... E. S. Gardner
May 9—Open Discussion .....
June 13—Annual Banquet .....

INDIANAPOLIS—R. L. Fitzsimmons, 1426 No. Drexel Ave.
Nov. 17—Molybdenum ..... W. A. Phillips
Dec. 7—Furnace Atmospheres .. R. J. Cowan
Jan. 9—Nitriding ..... H. W. McQuaid
Feb. 10—Salt Baths ..... H. W. Gager
Mar. 10—Steel Personality .. B. F. Shepherd
Apr. 4—Aluminum .....
May 2—Pyrometry ..... S. A. Silberman

LEHIGH VALLEY—H. Gifford, Bethlehem Steel Co., Bethlehem.
Dec. 2—Carburizing Gears .. W. J. Diederichs
Jan. 6—High Pressure Steels .. N. L. Mochel
Feb. 3—Annual Dinner .....
Mar. 3—Gas Atmospheres ..... Sam Tour
Apr. 7—Deep Drawing ..... Joseph Winlock
May 5—Tool Steel ..... A. W. F. Green

NEW HAVEN—R. T. Porter, Heppenstall Forge Co., Bridgeport.
Nov. 17—Machining ..... J. F. Holland
Dec. 22—Hard Carbides ..... G. J. Comstock
Jan. 19—Testing .....
G. W. Colton and Arthur Phillips
Feb. 24—Cast Iron ..... J. T. MacKenzie
Mar. 23—Furnace Atmospheres .....
E. G. de Coriolis and A. N. Otis
Apr. 20—Age Hardening .... H. A. Bedworth
May 18—Steel Personality .... B. F. Shepherd

NEW JERSEY—J. H. Johnson, 345 Mountain Ave., Springfield, N. J.
Dec. 12—Forgings ..... J. R. Adams
Jan. 9—Machinability ..... A. H. d'Arcambal
Feb. 13—Metallurgy ..... J. A. Matthews
Mar. 13—Nitriding ..... J. H. Higgins
Apr. 10—Magnesium Alloys .... John A. Gann
May 8—Sustaining Member Night

ONTARIO—L. F. Fitzpatrick, Flexible Shaft Co., Toronto.
Dec. 2—Bridge Steels ..... C. R. Young
Jan. 6—Nitriding ..... V. O. Homerberg
Feb. 3—Nickel ..... C. A. Crawford
Mar. 3—Stellite ..... C. W. Drury
Apr. 7—Welding .....
May 5—Steel Personality .... B. F. Shepherd

PHILADELPHIA—A. O. Schaefer, Midvale Co.
Nov. 25—Heat Resisting Steels .. F. B. Foley
Jan. 6—Radiography ..... C. S. Barrett
Jan. 27—Alloy Steels ..... H. J. French
Feb. 24—Metallurgy ..... O. E. Harder
Mar. 31—Nitriding ..... A. B. Kinzel
Apr. 28—Steel Castings ..... R. A. Bull

PITTSBURGH—H. L. Walker, Box 521, N. S. Station
Jan. 12—Aluminum Alloys .... E. H. Dix, Jr.
Feb. 9— ..... Earl Smith
Mar. 9—Open Hearths ..... J. E. McLeod
Apr. 13—Steel Castings .....
George Batty and C. H. Herty, Jr.
May 11—Non-ferrous ..... H. Foster Bain

RHODE ISLAND—C. G. Peterson, Providence Gas Co., Providence.
Jan. 4—Tool Steels ..... H. G. Keshian

SPRINGFIELD—E. H. Abbe, 17 Bayonne St.
Jan. 16—Correct Hardening .... Jordan Korp
Feb. 20—Tungsten Carbide ..... F. C. Kelley
Mar. 22—Macro-Etch ..... M. Yatsevitch
Apr. 17—Welding ..... J. C. Hodge

ST. LOUIS—F. D. Burnett, Railway Exchange Bldg.
Nov. 18—Timbre ..... F. R. Palmer
Dec. 16—Aluminum ..... R. S. Archer
Feb. 17—Die Castings .....
Mar. 17—Nitriding .....

WASHINGTON—S. J. Rosenberg, Bureau of Standards
Nov. 18— ..... V. N. Krivobok
Dec. 16—Slushing Oils ..... E. M. Converse
Jan. 20—Ship Building ..... W. E. Blewett
Mar. 17—Forging ..... Adam Steever

For Sale

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FRIEDMAN DESCRIBES FORGING MACHINERY TO ROCKFORD MEN

'Twas Season's First Meeting

By L. J. Strohmeyer

The attendance at the October meeting of the Rockford chapter, the opening meeting of the 1932-1933 season, was very encouraging. The speaker of the evening was J. H. Friedman, vice-president of the National Machinery Co., Tiffin, O. His talk covered the application of the various forging machines, such as upsetters, bolt, nut and wire nail machinery.

Some very interesting points were brought out, and the speaker exhibited samples of difficult jobs and explained how they were forged.

Mr. Friedman supplemented his talk with two reels of pictures, which showed the superior strength and construction of present day machines as compared to the older types.

The talk was followed by a lively discussion in which many members participated.

SPRINGFIELD OPENS SEASON BY DISCUSSING ATMOSPHERES

Sam Tour Interests Members

By Earl H. Abbe

The Springfield chapter opened the season on Oct. 17, with a very interesting talk by Sam Tour. The meeting was held in the Springfield Chamber of Commerce rooms and was attended by 25 members and guests.

Mr. Tour's talk was on "Furnace Atmospheres", giving a description of transient and quiescent atmosphere types of furnaces and a detailed outline of the control of atmosphere in the quiescent type of furnaces, also showing of what the atmosphere of these furnaces was liable to consist.

By the use of numerous well prepared slides he presented evidences of the effect of varying the atmosphere upon the internal structure of specimens, showing that the proper control of the furnace atmosphere is absolutely necessary to proper heat treatment of steel.

What Should a Metallurgist Know About PATENTS

Dr. A. W. Deller, a chemical engineer and patent attorney, has written a comprehensive yet easily grasped outline of the principles of patent law which the chemical or metallurgical engineer should know for his own protection. Chapter headings include:

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II CLASSES OF PATENTABLE INVENTIONS
III PERSONS ENTITLED TO LETTERS PATENT
IV PRINCIPLES OF PATENTABILITY
V ACQUISITION AND TERMINATION OF PATENTS
VI REMEDY OF DEFECTIVE PATENTS
VII FORM AND CONSTRUCTION OF PATENTS
VIII INFRINGEMENTS OF LETTERS PATENT
IX SUITS FOR INFRINGEMENT
X INCIDENTS OF OWNERSHIP OF PATENTS
XI COMMERCIAL PHASES OF PATENTS
XII FOREIGN PATENTS

The book contains 483 pages and has numerous illustrations. In the foreword, Dr. L. H. Baekeland writes, "My own information about patent laws has been acquired slowly, after long years of experience and at the cost of some expensive blunders. I might have avoided all this if I had been able to avail myself of a book like Dr. Deller's."

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TESTS IMPROVING, BALTIMORE HEARS

Season Opens with Survey of Present Testing Practice

By Stanley P. Watkins

The first meeting of Baltimore group's year was presided over by our new chairman, Alex. L. Feild, and was held at the Engineers' Club, as is the established custom, on Oct. 24. A dinner preceded the regular program. The speaker of the evening was Dr. Gerd S. von Heydekampf, Baldwin-Southwark Corp., Philadelphia. Dr. Heydekampf's subject was "Testing of Ferrous and Non-ferrous Materials."

Regardless of the numerous new tests the tensile test, which is the oldest, is still the most important of the tests conducted on the metals. There has been remarkable improvements in tensile test machines in recent years. The trend has been toward self-recording instruments with automatic recording of load and strain.

Dr. Heydekampf pointed out that ordinarily no great thought was given to the time element in applying stress, but with certain classes of steels it is important to know such rates. Machines are being developed at the present time which automatically control the rate of load applied during any predetermined interval of time.

Dynamic tests, which Dr. Heydekampf stated were based on the reversal of stress from zero to maximum on compression to tension, are not so good for practical routine testing, due to great expense and length of time to obtain results. Although the results of such tests are not to be accepted too literally, they are not to be disregarded as wholly without use since fatigue limit as obtained by a rotating beam type machine must be closely adhered to by those who design all types of aircraft.

Fatigue limit, as defined by Dr. Heydekampf, is the maximum stress at which a material will run 10,000,000 cycles without failure. He stated that of the values ordinarily obtained in tensile testing, only the ultimate strength has been found to bear any relation to fatigue limit. The fatigue limit is about 30 to 50% of the ultimate strength.

Hardness testing of materials, Dr. Heydekampf stated, was still largely made by one of the various indentation methods, and the trend is to produce instruments which are automatic in operation and direct reading. At least one machine has been introduced in the last few years which embodies the principle of the very old scratch test. This method is valuable for determining the hardness of the various constituents in metals.

Impact testing has not made the rapid strides as has the other methods, due largely to the fact that it has not been fully standardized and is not so practical, since apparently negligible factors have a profound influence on the results.

At the conclusion of Dr. Heydekampf's talk the meeting was thrown open to general discussion, which was lively and evidenced the interest shown by everyone present.

RHODE ISLAND'S MEN DEVOTE EVENING TO MOVIE OF BRIDGE

See Selves in Picnic Movie

By Stuart A. Woodruff

The Rhode Island chapter held its first meeting of the season on Oct. 5 in the Engineering Auditorium at Brown University. The first feature in the evening was the showing of a film taken by our vice-chairman, Walter Saunders, showing the high lights in the sports program at our annual meeting and outing held on June 18. Mr. Saunders' picture was voted a success by all present.

The main event of the evening was the showing of John A. Roebling's Sons Co. new film entitled the "Span Supreme". This excellent film depicts the construction of the George Washington Bridge across the Hudson at New York. It also shows the various wire making operations at the Roebling plant. The film was of unusual interest to the audience because of incidents surrounding the erection of the Mount Hope Bridge which is located only a few miles from Providence.

The film was taken with great care in order that the various steps of the erection process follow in clear and logical order, and great credit is due to those responsible for the making of the film. In watching this picture one gained a very accurate idea of the method of construction, and also a profound respect for the skill of the designer. The picture was enthusiastically received and after the conclusion of the picture, there was a hearty applause.

CINCINNATI HAS TWO TALKS ON MEASURING TEMPERATURE

Hear R. S. Tour and R. O. McDuffie

By N. C. Strohmenger

Professor R. S. Tour, head of the department of chemical engineering, University of Cincinnati, talked recently to the Cincinnati chapter on the subject of "Temperature Measurements up to 1500°C. (2732°F.)". We were told about the different thermocouple wires used for measuring various temperature ranges with particular reference to their accuracy and ability to stand different temperatures. The electromotive force generated in a thermocouple was fully explained, how it takes place and is balanced on different temperature measuring instruments. He simply detailed the operating principles of galvanometer and potentiometer instruments their advantages and disadvantages. Also the new temperature control instrument developed under Professor Tour was briefly outlined and its possible future use seems to be great.

Then Chairman Kenyon introduced Dr. R. O. McDuffie, professor of metallurgy at the University of Cincinnati, who spoke on the subject of "Measurements of High Temperatures". He told us about the different radiation pyrometers used and how they generally operate. Also he mentioned about the optical pyrometer and how it works. Quite a few reasons were given for the disadvantages involved when using the radiation pyrometers and the advantages of using the optical pyrometer. One of the main points brought out was the accuracies obtained with these instruments.

Both of the speakers accompanied their talks with slides which gave us a more clear idea of their subject.

LEHIGH MEN HOLD AN OPEN MEETING

Members Discuss Puzzles of Proper Heat Treating

By O. V. Greene

On Oct. 12 the Lehigh Valley chapter experimented with a new type of meeting, which was held in Allentown. A portion of the program was devoted to resumes of the business meetings and abstracts of the outstanding technical papers of the Buffalo National Metal Congress. However most of the evening was spent with the principal part of the program, the discussion of questions submitted previously by various members of the chapter. Some of the questions answered and discussed were:

"What is the effect of mass on heat treatment?"

"Will a tool steel quenched in brine be harder than the same tool quenched in water, and, if so, why?"

"What is the effect of drawing vs. time in severely quenched steels?"

"How does one decide the best quenching medium for a piece of steel other than by trial and error?"

"In hardening an alloy steel where normalizing and oil quenching would ordinarily be used, why is it not practicable to drop the temperature to the oil quenching temperature when normalizing, and quench only once?"

"Why should a 1.00% carbon tool steel that is oil treated at 1600°F. pack annealed at 1350°F. and hardened in brine at 1450°F. harden at least 1/32 inch deeper than the same steel oil treated at 1600°F. and hardened at 1450°F.?"

Formal presentations of answers to questions were made by W. E. Harvey, L. F. Witmer, H. L. Gifford, H. Apgar, and G. V. Luerssen. Other members of the chapter contributed informally. The concensus was that this type of meeting was highly profitable and that the chapter should hold at least one open meeting every year.

ALLEGHENY ROLLS BI-METAL

Composite Plates of 18-8 and Mild Steel Cost Little, Shape Well

Composite plates of 20% stainless steel and 80% mild steel are now being rolled by Allegheny Steel Co. The two metals are combined in the ingot and rolled together, the resultant bond between them being indissoluble and unaffected by differences in coefficients of expansion.

Low price, about one-half that of solid 18-8, and comparative ease of fabrication are significant advantages. It is expected that the composite will be used extensively where corrosion resistance on only one side of the sheet is required and where the great tensile strength and heat resistance of the solid stainless alloy are not required by the service.

MONTREAL'S FIRST MEETINGS POPULAR

Hear Talks on Steel in India and on Metallography

By Gordon Sproule

The first gathering of the Montreal chapter was at a meeting of the Montreal branch of the Canadian Institute of Mining and Metallurgy, Sept. 21, to which the A. S. S. T. members were very kindly invited. Fifteen or twenty A. S. S. T. men turned out at this meeting and heard a very interesting talk by Gerald Dobbs, a Canadian and graduate of Queen's University, who is in charge of the mining operations of the Tata Iron and Steel Co. in India, one of the great iron and steel companies of the world.

Mr. Dobbs described the very extensive and high-grade iron deposits and the methods of mining, which are peculiar to these deposits and to the class of labor available. He also described measures which the company has taken to eliminate malaria and hookworm, and went into other interesting details about the country and the people. He pointed out that this company is an entirely Indian enterprise, he being the only "European" in the mining department, although, of course, much of the engineering and equipment is due to the United States and Europe. Almost the entire output of the company is used in India, being fabricated into a great variety of iron and steel products. An interesting detail described was the sale of crop ends of blooms and billets to primitive blacksmiths in the country.

Mr. Dobbs' very interesting lecture was a revelation in many respects and was much appreciated by the visiting Steel Treaters.

The first regular monthly meeting of the chapter was held on Oct. 3, preceded by the usual dinner, at the Windsor Hotel. About 35 members attended the dinner and about the same number came in afterwards to the lecture. A coffee talk was given by William C. Lodge on the manufacture of paper. This was illustrated by a well-chosen collection of slides and was given in a particularly clear manner.

The main lecture was delivered by Gordon Sproule, past chairman, and comprised an introduction to metallography. It had frequently been noticed that most visiting lecturers used micrographs to a great extent and it was felt that a considerable number of the members had not had an opportunity of becoming familiar with the meaning of micrographs.

Mr. Sproule's lecture took the audience across the iron-carbon diagram, showing the variation of structure with composition, with side-trips to show the effect of heat and mechanical treatments. Under the chairmanship of C. E. Herd the meeting went very well, and it was felt that the season was off to a good start.

SCHENECTADY'S MEN HEAR WILLS OCT. 18

Learn Role of Laboratory in Service of Steel Mill

By L. L. Wyman

The Schenectady chapter began its activities for 1932-33 on Oct. 18, when it had as guest speaker W. H. Wills of Ludlum Steel Co.

A goodly number were present at the dinner, previous to the meeting, and before the movies, showing the manufacture of steel from one mine to consumer, had been run off a large portion of the membership had arrived, in spite of rainy weather.

Mr. Wills presented a very interesting discussion concerning the functions of the steel laboratory, relating how the work is divided into control, trouble shooting and research branches. The speaker enumerated the various kinds of both physical and chemical testing, pointing out the significance of each in industry.

The instances of "trouble shooting" or customer's complaints which were brought out by Mr. Wills very clearly indicated that many consumers of steel insist on using the wrong type of steel for a given purpose.

The failure of the consumer to give to a steel its proper heat treatment causes the greater portion of the complaints, faulty tool and die design being another heavy contributor.

The efforts of the steel user to minimize costs by using the more inexpensive steel frequently causes enough trouble to cost more than the more suitable alloy steels.

A very lively discussion period followed the meeting, and everyone enjoyed a very profitable evening.

MALLEABLE IRON IS TOPIC OF NOTRE DAME'S JOINT MEETING

R. J. Teetor Opens New Season

By John J. Kelley

Members and guests of the Notre Dame group gathered on the evening of Oct. 26 for the first meeting of the current year in the Metallurgy Auditorium of the Engineering Building. Inasmuch as it was a joint meeting with the American Chemical Society all business of the chapter was dropped for the evening.

Chairman E. W. Stanton then introduced the principal speaker of the evening, a man who has been in the field of cast iron for some thirty years, R. J. Teetor, general manager of the Cadillac Malleable Cast Iron Co.

Mr. Teetor reviewed, briefly, the history of malleable iron in Europe and in this country, immediately passing on to the more technical and practical side of his subject, "Properties, Uses, and Manufacture of Malleable Cast Iron." A series of slides showing the characteristic structure of gray, white and malleable cast iron were used to show and explain the superiority of malleable castings over other castings. To further illustrate his subject Mr. Teeter showed several small castings.

As very little has been recorded as to fatigue values for malleable iron Mr. Teetor stated that at the present time such tests were being undertaken by the metallurgy department of Notre Dame under the supervision of Doctor E. G. Mahin in collaboration with the Cadillac Malleable Cast Iron Co. These tests should constitute a most interesting form of investigation, for relatively will new territory be explored.

In closing Mr. Teetor gave a brief review of work to date on partially malleablized iron. He stated that at present this field of development is very active, and the future quite probably will bring out some new products produced from a white iron base.

TOOL STEEL CHOSEN AS JERSEY SUBJECT

150 Hear Shepherd At Meeting in Newark on Oct. 10

By Ernest O. Olds

About 150 members and guests of the New Jersey chapter were present at the second regular meeting on Oct. 10, at the Elk's Club. Some forty of them had previously enjoyed an excellent dinner.

Chairman MacWilliams opened the meeting by calling on Mr. Elshoff, who reported a gain in new members and was enthusiastic for the continued substantial growth of our chapter. Chairman Roth told of plans being completed for the course in metallurgy proposed for this winter.

Following the showing of a movie on "Silver," presented through the courtesy of the Gorham Co., our chairman introduced the speaker of the evening, B. F. Shepherd, who spoke on the subject "Tool Steel."

Tool steels are bought on specification as to chemical analysis and relative cleanness. While the many different methods of inspection present much valuable information as to the quality of steel purchased, yet in several respects there is still room for further improvements. Of course, first comes the chemical analysis of the new material. Then follows the acid etch to permit the study of the macrostructure for cleanliness and to observe the nature of any nonmetallic inclusions present. Emphasis is placed on the hardening quality of the steel by a special hardenability test developed by the speaker.

In the discussion following, Mr. Shepherd stated that the more intense the quench, the finer the grain size and the greater the surface hardness.

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WASHINGTON HOLDS AIRSHIP MEETING

Construction of "Akron" and "Macon" is Described

By C. W. Briggs

The Washington chapter held its first technical meeting of the fall on October 21 at the Bureau of Standards, with our esteemed chairman, Lewis H. Fawcett, presiding.

Everyone was interested in the subject of the evening which was a talk on "Airship Construction as Exemplified by the U. S. S. Akron and the U. S. S. Macon." Our lecturer, W. C. Young of the Goodyear-Zeppelin Corp., fulfilled all our expectations and told us of many interesting problems in the construction of these giant ships of the air. The largest gas bags in the world was what Mr. Young called them. That is, he said, until the present presidential campaign when they were robbed of their unique title.

During the first portion of the lecture, Mr. Young showed, by moving pictures, the interesting features of the construction of the Akron.

In his paper he told how various materials for the frame work were considered. He pointed out that Goodyear had not completely discarded the idea of using steel, preferably in the stainless form for the frame construction. The aluminum alloys used in the construction of the Akron gave even better results than they had anticipated, and it was felt that in the future these results could be exceeded. Chrome-molybdenum and chrome-nickel-molybdenum steels were used in many phases of the construction. The wire used in construction consisted of Swedish iron that was drawn to have high tensile strength. Aluminum castings saw wide application in use in valves and control cabin features.

It was Mr. Young's contention that airship travel would be a very important mode of transportation in the near future. The comfort and ease of the traveling and the speed of 80-100 miles per hour makes the airships very worth considering in oceanic travel.

The usual speaker dinner was held before the meeting at the Kennedy-Warren. Many of the members turned out to greet the speaker and to start off the evening in a very enjoyable manner.

L. M. THOMAS, DETROIT, DEAD

Laurence M. Thomas, consulting metallurgist for Gemmer Manufacturing Co., Detroit, and a member of the Detroit chapter, died Nov. 3 after a long illness.

TRI-CITY'S OCTOBER MEETING FEATURES STAINLESS STEELS

Whitmer Surveys Their Use

By H. A. Deane

The Tri-City chapter held its October meeting at the Fort Armstrong Hotel with forty men in attendance.

Mr. Whitmer of the Republic Steel Corp. spoke on "Stainless Steel" which has been in use only a comparatively short time. It contains 18% chromium and 8% nickel. Its uses are increasing very rapidly.

The automobile industry uses stainless steel on the bright parts of the automobiles. It will remain bright indefinitely and will not peel off as platings do.

The architects have enthusiastically welcomed stainless steel for use as decorative yet practical trim for buildings. The Chrysler and Empire State buildings made use of stainless steel.

The newest use for stainless steel has been for utensils in the dairy industry and in the homes for pots and pans. They always retain their brightness and can be scoured without being scratched.

Mr. Magerkurth gave a short but entertaining talk on baseball in the big leagues.

STUART CO. HAS BOOKLET

D. A. Stuart & Co., 2727 So. Troy St., Chicago, has completed the third edition of the engineering booklet, "The Straight Line to Metal Working Efficiency," which features data regarding the development of the new S.A.E. extreme pressure gear and bearing industrial and automatic lubricants.

HOSKINS CO. OFFERS CALCULATOR

A novel and very useful device for calculating heating units, for use especially when designing coiled units, has been prepared by Hoskins Mfg. Co., Detroit. The calculator is in the form of two slotted cards, back-to-back, through which various data can be read by adjusting a card which slides between. C. S. Kinnison, advertising manager, will send you one.

TWO LOS ANGELES MEN ORGANIZE

Two prominent members of the Los Angeles chapter, Bill Farrar and Bill Cook, have formed the Farrar Industrial Products Co. to specialize in commercial heat treating and the sale of metal working and heat treating products. Their address is 3334 E. Slauson, Los Angeles.

FINE TRIBUTE PAID TO METAL PROGRESS

Critic Says A.S.S.T. Magazine Sets A New Standard

Unusual tribute was paid recently to *Metal Progress* by William A. Kittredge, an executive of the Lakeside Press of the R. R. Donnelly Sons Co., nationally famous printers in Chicago.

In the magazine *Printed Salesmanship* Mr. Kittredge wrote an article which he entitled "Visual Editing to Catch Reader Interest." Several "before and after" photographs of house organs and business papers were reproduced to show the trend toward better typography and illustration.

Then, set aside from the other illustrations, he reproduced a page from *Metal Progress* with this caption, "This page from *Metal Progress* demonstrates why this magazine has set a new typographic standard for business papers. It uses a large page size, plenty of white space and bleed illustrations."

In the text which followed, Mr. Kittredge had the following to say of *Metal Progress:* "A fine concrete example of this practice is a magazine published in Cleveland called *Metal Progress* which was started in September, 1930. Getting off to a fresh start, without the inhibitions and hampering limitations of a magazine with a long tradition, it is one of the best designed business magazines of today. Under the editorship of E. E. Thum it has been successful throughout the depression.

"In the original plans for *Metal Progress*, all resources were used to get the greatest number of intelligent ideas for design and contents. An advertising agency, a typographical designer, and other experts were consulted for their professional opinion regarding the best design of a magazine in the field they are in. Original works of art in the form of etchings, drawings and lithographs that relate to steel are generously reproduced in full pages. Scientific articles are backed up with action photographs that might have been made under a movie director. The whole format of the magazine is hopeful and constructive, a relation of scientific fact and esthetic purpose which is both interesting and commendable."

WORLD'S FAIR TO RECOGNIZE ELECTRIC STEEL PRODUCTION

Provisional Plan is Announced

The increase in the use of the electric furnace for the manufacture of steel in this country and the resultant revolution that has taken place in the methods of steel-making by electricity in the course of two decades is likely to be emphasized in staging the iron and steel display at the Chicago World's Fair in 1933, according to the report of the iron and steel section of the National Research Council Science Advisory Committee.

The National Research Council Science Advisory Committee is composed of about forty leaders in all fields of scientific achievement who, under the chairmanship of Dr. Frank B. Jewett, vice-president of the American Telephone and Telegraph Co., are working on plans to make the science exhibits at the Chicago exposition the central feature. The iron and steel display will be under the supervision of the iron and steel division of the Committee.

In the report outlining a provisional plan for the iron and steel display it is pointed out that "the American electric steel industry had its start just prior to 1909."

The first year of commercial production of electric steel in this country, the report states, was 1908, when 55 tons of electric steel were produced at Syracuse, N. Y., on the first Heroult furnace to be installed in the United States.

In 1909 there were only 10 electric furnaces in this country, according to the report, when Germany had 31, France 22, Italy 12, and Austria 10. Electric furnaces in existence in that year throughout the entire world numbered 114.

In 1914, the report states, "electric steel passed the experimental stage and became a practical modern method of making high grade steel replacing the crucible method rapidly."

At present, the report states, there are approximately 600 electric furnaces in the United States.

REVIEW NOW A BI-MONTHLY

Effective with this issue

Beginning with this issue, the REVIEW will be issued every other month, in the months of November, January, March, May, July and September.

PROGRESS IN IRON MAKING IS OUTLINED TO NORTHWEST MEN

T. L. Joseph is the Speaker

By T. P. Hughes

The Northwest chapter started its work for the year with an address on the subject, "Making Iron and Steel". The speaker was T. L. Joseph, superintendent of the Mines Experiment Station of the University of Minnesota.

The speaker pointed out the progress of the iron and steel industry from its early beginning and described some of the modern processes in detail. Motion and still pictures were shown of how charges are arranged in furnaces and how information may be obtained of the condition of the charge in blast furnaces by means of inserting water cooled pipe into the furnace. Great savings in cost and higher efficiencies are obtained by controlling the uniformity of the size of the charge materials in the blast furnace the speaker stated.

The number in attendance at this meeting was very encouraging.

CLIMAX MOLYBDENUM PRINTS BOOK

Climax Molybdenum Co., 295 Madison Ave., New York City, has published a 52 page book "Molybedenum in 1931" which contains information on the applications of molybdenum, a bibliography of pertinent literature published during the year, and the results of laboratory research.

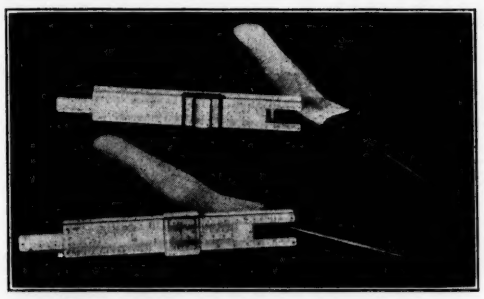
ANNOUNCE SUPERSENSITIVE RELAY

A new supersensitive relay that will break 1320 Watts with 4 milliamperes at six volts, that is impervious to dust and dirt, and is absolutely safe where an open spark would be hazardous, has been announced by American Instrument Co., 774 Girard St., N. W., Washington, D. C. Descriptive literature will be mailed on request.

A new 12-page folder, No. 37, has been published by Baldwin-Southwark Corp., Philadelphia, covering the line of lever type strain gauges known as Huggenburger tensometers. These measure the strain in a specimen under load, and thereby the stress.

This POCKET SLIDE RULE

Really Works



This slide rule is indispensable in making frequent calculations in the plant, the laboratory or on the road. It's sturdily built and very accurate.

The rule is 5 inches long and has square, tangent, sine and logarithm scales in addition to the usual scales for multiplying and dividing. The divisions are ruled with extreme accuracy. Built of plied bamboo held rigidly by an aluminum frame, the rule will not warp or gather dampness in normal use The slide is a sturdy metal frame protecting a solidly mounted glass. A magnifier available at slight additional cost, aids materially. . . . The price is only $2.50 for the rule and leather case; with magnifier, $3.00.

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Lectures on Steel and Its Treatment by John F. Keller
A blacksmith who by long and careful study has mastered the mysteries of iron and steel so that he makes them understandable through homely similes and every day comparisons.

Principles of Heat Treatment of Steel by the Metallurgical Staff, Bureau of Standards
Presents the basic reasons for the behavior of steels when heated, cooled or quenched. It contains a comprehensive bibliography, a great aid in studying specific problems.

Heat Treatment, Uses and Properties of Steel by H. B. Knowlton
Assistant Chief Metallurgist of International Harvester Co. covers the various plain carbon and alloy steels, their selection and properties obtainable by various treatments. The author goes at length into the peculiarities of each steel, methods and equipment for handling, carburizing, heat treating and cleaning.

The Constitution of Steel and Cast Iron by Frank T. Sisco
Editor, Alloys of Iron Research, explains in his clear, understandable manner the metallurgical functions of carbon and the common alloying elements, the effects of heat treating and variations in alloy content to secure internal structures that give desired physical properties. Cold working, carburizing and treating of worked and carburized steels are presented at length.

The Quenching of Steels by H. J. French
In charge of steel development, The International Nickel Co., clarifies this subject. Cooling mediums are classified. The effect of size and shape of work in process and sources of variation in hardening are presented in detail. Gives a simple means of selecting proper cooling solutions; also tables for determining internal and surface condition of steels after quenching.

Nitriding Symposium, papers presented by several authorities at the Convention of the A.S.S.T., reviews the possibilities of this process, selection of nitriding steels and proper application of the process.

Inclusions in Iron by Dr. C. R. Wohrman
Is a careful study of the common inclusions, their nature and effect.

The Application of Science to Industry by Dr. W. H. Hatfield
Director, Brown-Firth Research Laboratories, England, is an interesting review of British steel making and rolling practice. He discusses many of the common steels. Chapters on steel at elevated temperatures and tool and cutlery steels contain much valuable data.

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